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| EXAMINER | |
|---|---|
| RINEHART, KENNETH | |
| ART UNIT | PAPER NUMBER |
| 3749 | |
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/715,889 | TIMM ET AL. | |
| | Examiner | Art Unit | |
| | Kenneth B. Rinehart | 3749 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *11 June 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14* is/are rejected.

7)☒ Claim(s) *15 and 16* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *26 February 2007* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

### *Response to Arguments*

Applicant's arguments filed 6/11/07 have been fully considered but they are not persuasive. The applicant is merely optimizing the transfer of energy (the transfer of thermal energy in said cross machine direction or through said dryer shell being maximized or minimized, etc, uniform heat transfer with low heat transfer rate) which is well within the ability of an individual of ordinary skill. This is merely the result of the claimed spacing. The applicant is merely providing a certain number or spacing of bars to provide for an optimized result. The applicant's comments concerning ribs are equally unpersuasive as the applicant has merely renamed the ribs as bars. Regarding applicant's arguments against Wimmer and Ives, the references were used to teach hollow tubes and not the quarter-resonance for the optimized results. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references.

### *Claim Objections*

Claims 15 and 16 are objected to because of the following informalities: Claim 15, line 8, refers to ".An apparatus as set forth in claim;" Appropriate correction is required. It is not common practice to have a preamble and a period in the middle of a claim

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-3, 5-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Salminen (5,564,494). Salminen discloses a rotatable dryer shell of cylindrical configuration, said dryer shell having an outer surface for drying the web; said dryer shell having an inner surface which defines an enclosure, said inner surface having a radius Ri(col. 1, line 19, fig. 18); said enclosure being connected to a source of pressurized steam such that in operation of the dryer, a transfer of thermal energy from the steam within said enclosure through said inner surface of said dryer shell to said outer surface of said dryer shell is achieved so that the web is dried (col. 1, lines 17-20, 24-27); a syphon disposed within said enclosure for controlling a layer of condensed steam accumulating adjacent to said inner surface of said dryer shell during operation of said apparatus (col. 1, line 37); a number of turbulence bars disposed within said enclosure, each of said turbulence bars extending in a cross machine direction in contact with said inner surface, said bars being circumferentially spaced equidistantly around said inner surface of said dryer shell for generating turbulence within said layer so that uniformity of said transfer of thermal energy in said cross machine direction ... while said transfer of thermal energy through said dryer shell from said inner to said outer surface ... (112, 108, 110, fig. 12a, abstract), a rotatable dryer shell of cylindrical configuration , said shell defining and outer and an inner surface (fig. 18); a number of dryer bars pressed outwardly against said inner surface, each of said bars extending in a cross machine direction along said inner surface; and each bar being spaced from an adjacent bar by a ... such that a rate of heat transfer through said dryer shell from said inner to said outer surface is... a temperature uniformity in said cross machine direction (112, 108, 110, fig. 12a, abstract). Salminen

discloses applicant's invention substantially as claimed with the exception of is maximized, is minimized, and said number of turbulance bars being determined by the equation: N= int {2n R./[4x (Ri fi) I/2 + W] } in which: N= said number of turbulance bars in said dryer shell; int= an integer number of a value in { } brackets; n=3.1415; Ri = said inside radius of said inner surface of said dryer shell in inches; 8 = an average depth of said layer in inches; W= a width of each of said turbulance bars in inches, said number of turbulance bars is equal to N + 1, said number of turbulance bars is equal to N + 2, N=3, N=4, N=5, N=6, N=7, N=8, N=9, quarter-resonant spacing, minimized while optimizing, said quarter-resonant spacing is determined by an equation: S=4x( Ri 5) t/2 in which; S= said quarter-resonant spacing; r~= 3.1415; Ri = said inside radius of said inner surface of said dryer shell in inches; = an average depth of a layer of condensed steam disposed adjacent to said inner surface in inches.. It would have been obvious to one of ordinary skill in the art at the time the invention was made to is maximized, is minimized, and said number of turbulance bars being determined by the equation: N= int {2n R./[4x (Ri fi) I/2 + W] } in which: N= said number of turbulance bars in said dryer shell; int= an integer number of a value in { } brackets; n=3.1415; Ri = said inside radius of said inner surface of said dryer shell in inches; 8 = an average depth of said layer in inches; W= a width of each of said turbulance bars in inches, N=3, N=4, N=5, N=6, N=7, N=8, N=9, quarter-resonant spacing, minimized while optimizing, said quarter-resonant spacing is determined by an equation: S=4x( Ri 5) t/2 in which; S= said quarter-resonant spacing; r~= 3.1415; Ri = said inside radius of said inner surface of said dryer shell in inches; = an average depth of a layer of condensed steam disposed adjacent to said inner surface in inches. since it has been held that discovering an optimum value of a results effective variable involves only routine skill in the art.

Claims 1-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barnscheidt (3217426). Barnscheidt discloses a rotatable dryer shell of cylindrical configuration, said dryer shell having an outer surface for drying the web; said dryer shell having an inner surface which defines an enclosure, said inner surface having a radius Ri(fig. 1, col. 3, lines 5-10); said enclosure being connected to a source of pressurized steam such that in operation of the dryer, a transfer of thermal energy from the steam within said enclosure through said inner surface of said dryer shell to said outer surface of said dryer shell is achieved so that the web is dried (col. 1, lines 12-20, lines 30-33, ); a syphon disposed within said enclosure for controlling a layer of condensed steam accumulating adjacent to said inner surface of said dryer shell during operation of said apparatus (fig. 1); a number of turbulance bars disposed within said enclosure, each of said turbulance bars extending in a cross machine direction in contact with said inner surface, said bars being circumferentially spaced equidistantly around said inner surface of said dryer shell for generating turbulance within said layer so that uniformity of said transfer of thermal energy in said cross machine direction ... while said transfer of thermal energy through said dryer shell from said inner to said outer surface ... (col. 3, lines 72-75, col. 4, lines 1-5), a rotatable dryer shell of cylindrical configuration , said shell defining and outer and an inner surface (fig. 1); a number of dryer bars pressed outwardly against said inner surface, each of said bars extending in a cross machine direction along said inner surface; and each bar being spaced from an adjacent bar by a ... such that a rate of heat transfer through said dryer shell from said inner to said outer surface is... a temperature uniformity in said cross machine direction (fig. 1, col. 3, lines 72-75, col. 4, lines 1-5), a further number of hoop segments spaced circumferentially along said inner surface of said dryer shell for holding said turbulance bars in

contact with said inner surface; said number of turbulance bars being a multiple of said further number of hoop segments (6, fig. 1), holding a number of bars axially against an inside surface of the dryer cylinder (8,9, fig. 3), said number being within a range 3 to 9; and locating hoop segments within the dryer cylinder such that each segment is disposed in a generally circumferential position (fig. 3, fig. 1). Barnscheidt discloses applicant's invention substantially as claimed with the exception of is maximized, is minimized, and said number of turbulance bars being determined by the equation: N= int {2n R./[4x (Ri fi) I/2 + W] } in which: N= said number of turbulance bars in said dryer shell; int= an integer number of a value in { } brackets; n=3.1415; Ri = said inside radius of said inner surface of said dryer shell in inches; 8 = an average depth of said layer in inches; W= a width of each of said turbulance bars in inches, said number of turbulance bars is equal to N + 1, said number of turbulance bars is equal to N + 2, N=3, N=4, N=5, N=6, N=7, N=8, N=9, quarter-resonant spacing, minimized while optimizing, said quarter-resonant spacing is determined by an equation: S=4x( Ri 5) t/2 in which; S= said quarter-resonant spacing; r~= 3.1415; Ri = said inside radius of said inner surface of said dryer shell in inches; = an average depth of a layer of condensed steam disposed adjacent to said inner surface in inches, the number of bars is 3, 4, 5, 7,8,9. It would have been obvious to one of ordinary skill in the art at the time the invention was made to is maximized, is minimized, and said number of turbulence bars being determined by the equation: N= int {2n R./[4x (Ri fi) I/2 + W] } in which: N= said number of turbulence bars in said dryer shell; int= an integer number of a value in { } brackets; n=3.1415; Ri = said inside radius of said inner surface of said dryer shell in inches; 8 = an average depth of said layer in inches; W= a width of each of said turbulence bars in inches, N=3, N=4, N=5, N=6, N=7, N=8, N=9, quarter-resonant spacing,

minimized while optimizing, said quarter-resonant spacing is determined by an equation: S=4x( Ri 5) t/2 in which; S= said quarter-resonant spacing; r~= 3.1415; Ri = said inside radius . of said inner surface of said dryer shell in inches; = an average depth of a layer of condensed steam disposed adjacent to said inner surface in inches. since it has been held that discovering an optimum value of a results effective variable involves only routine skill in the art.

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Barnscheidt et al (3217426) as applied to claim 12 above, and further in view of Wimmer (4,478,168). Barnscheidt et al discloses a cross-section of each of said bars is within a range from 0.25 inches x 0.25 inches to 1.0 inches x 1.50 inches (col. 4, lines 29); each of said bars is metallic and of ... configuration (fig. 1); said apparatus including: at least one hoop for pressing each of said bars against said inner surface of said dryer shell (fig. 2); said at least one hoop including: at least one segment (fig. 2). Barnscheidt discloses applicant's invention substantially as claimed with the exception of hollow tubular. Wimmer teaches hollow tubular to reduce weight. It would have been obvious to one of ordinary skill in the art to modify Barnscheidt by including hollow tubular as taught by Wimmer for the purpose of reducing weight for ease of transportation.

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Barnscheidt et al (3217426) as applied to claim 12 above, and further in view of Ives (7028756). Barnscheidt et al discloses a cross-section of each of said bars is within a range from 0.25 inches x 0.25 inches to 1.0 inches x 1.50 inches (col. 4, lines 29); each of said bars is metallic and of ... configuration (fig. 1); said apparatus including: at least one hoop for pressing each of said bars against said inner surface of said dryer shell (fig. 2); said at least one hoop including: at least one segment (fig. 2). Barnscheidt discloses applicant's invention substantially as claimed with the exception

of hollow tubular. Ives teaches hollow tubular to reduce weight. It would have been obvious to one of ordinary skill in the art to modify Barnscheidt by including hollow tubular as taught by Wimmer for the purpose of reducing weight for ease of transportation.

***Allowable Subject Matter***

Claims 15 and 16 are objected to as a result of informalities in the claims.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kenneth B. Rinehart whose telephone number is 571-272-4881. The examiner can normally be reached on 7:20 -4:20.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven McAllister can be reached on 571-272-6785. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

KENNETH RINEHART
PRIMARY EXAMINER

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